ROY F. WESTON, INC.

WETLAND DELINEATION REPORT
FOR
CALUMET CONTAINER SITE
HAMMOND, LAKE COUNTY, INDIANA

WESTON

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14 October 2002

Ms. Verneta Simon
On Scene Coordinator
U.S. Environmental Protection Agency
77 West Jackson Boulevard, SE5J
Chicago, Illinois 60604

TDD No.: 0202-001

Subject: Calumet Container Site
Wetland Delineation Report

Dear Ms. Simon:

Weston Solutions, Inc. (WESTON®) is pleased to submit three copies of the Wetland Delineation Report, Revision 1, for the Calumet Container Site in Hammond, Indiana.

Should you have any questions or require additional information, please feel free to contact us.

Very truly yours,

WESTON SOLUTIONS, INC.

Richard H. Mehl, Jr.
Site Manager

cc: Gail Nabasny, START Project Officer, U.S. EPA, Region V(SE-5J)

WETLAND DELINEATION REPORT
FOR
CALUMET CONTAINER SITE
HAMMOND, LAKE COUNTY, INDIANA

Revision 1
14 October 2002

Prepared for:

U.S. Environmental Protection Agency
Emergency and Remedial Response Branch
Region V
77 West Jackson Boulevard
Chicago, Illinois 60604

Prepared by:

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750 E. Bunker Court, Suite 500
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WETLAND DELINEATION REPORT
FOR
CALUMET CONTAINER SITE
HAMMOND, LAKE COUNTY, ILLINOIS

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Revision 1
October 2002

Approved By: _____ Date: 10-14-02

Thomas Hanzely
Associate Project Scientist

Approved By: _____ Date: _____

Richard H. Mehl, Jr.
Project Manager

TABLE OF CONTENTS

APPENDIX LIST

SECTION 1
INTRODUCTION

On February 20, 2002, the United States Environmental Protection Agency (U.S. EPA) On-Scene Coordinator (OSC) Verneta Simon and Weston Solutions, Inc (WESTON) Superfund Technical Assessment and Response Team (START) initiated a Site Assessment at the Calumet Container site located in Hammond, Lake County, Indiana. As part of the ongoing assessment of the site, a wetland assessment was performed on May 20, 2002 to identify, delineate, and determine the quality of the wetlands and other waters present onsite. This report summarizes the results and findings of this investigation.

1.0 SITE CHARACTERISTICS

1.1 GENERAL SITE DESCRIPTION

The site encompasses approximately 11 acres in Hammond, Lake County, Indiana. Approximately 90 percent of the triangular-shaped site is located in Lake County, Indiana and the remaining 10 percent is located Cook County, Illinois. The site is located within the Little Calumet-Galien watershed, which is connected to Lake Michigan.

Both industrial- and residential-use land surrounds the site and within ¼ mile of the site boundary are recreational-use bodies of water. A mobile home park is located directly adjacent to the site to the east and another is across 136th Street to the northwest. The adjacent are mostly comprised of wetlands and across 136th Street to the north is Wolf Lake, an interstate fishing and recreational lake. Beyond the rail line to the southwest is Powderhorn Lake and the Burnham Woods forest preserve. Lake Michigan is located less than 3 miles to the northeast of the site.

The site was home to the former Steel Container Corporation, also known as the Calumet Container Corporation, which began operations in the 1960's. Operations at the site included drum and pail reconditioning (5- to 55-gallon) and fiber drum processing. Most of the facility structure is no longer present, although there are numerous debris and scrap piles remaining throughout the site and within wetlands areas. Remnants of the former building foundation are still visible in the southwestern portion of the site. Currently the site is known to be contaminated with organic and inorganic compounds.

A petroleum pipeline right-of-way (ROW) bisects the site. The ROW goes from east to west through the central section of the site.

1.2 TOPOGRAPHY AND DRAINAGE

The site is located within the Little Calumet-Galien watershed (Appendix B). The site generally decreases in elevation as you proceed from north to south. Slope ranges from 2 to 4% from north to south, but decrease to relatively flat lands in the wetlands. Varying slope ranges throughout the site can be associated with large debris and fill piles throughout the site.

Drainage from the site was studied by Wapora (1979) and Soil Testing Services (1980) and both concluded that the general groundwater flow is in a northeast direction from the site towards Wolf Lake, which is approximately 2000 ft northeast of the site.

1.3 SOILS

The *Soil Survey of Lake County, Indiana* (Persinger, 1972) maps the following soil types on the site (Figure 1):

- OkB – Oakville-Tawes complex, 0-6 percent slope
- Marsh
- Urban

The Oakville-Tawes complex consists of very poorly drained and excessively drained soils that formed in organic materials and in sandy mineral soil materials.

The Tawes muck series of the Oakville-Tawes complex is identified as hydric (wetland) on the national list of hydric soil (USDA 1991). The area mapped as Marsh is defined as areas that occupy shallow lakes and ponds that may be dry during the years of less than normal precipitation. Most areas of Marsh, however remain wet all year. Dominant vegetation of Marshes include; cattails, rushes, sedges, willows, and other hydrophytic vegetation. Based on the above definition of a Marsh, this soil type would also be classified as hydric. The area mapped as Oakville-Tawes complex will contain, by classification, inclusions of hydric areas.

Urban soil classification indicates that the soil has been disturbed and most likely contains fill materials.

1.4 NATIONAL WETLAND INVENTORY

The U.S. Fish and Wildlife Service's (USFWS) National Wetland Inventory (NWI) GEOTRACT Internet mapping utility identifies 1.5 acres of wetlands or other waters on the site (Appendix C). USFWS identifies these wetlands as:

- PEMF – Palustrine, Emergent, Semi-permanently Flooded
- POWF – Palustrine, Open Water/Unknown Bottom, Semi-permanently Flooded
- POWHX – Palustrine, Open Water/Unknown Bottom

The wetland investigation perform by WESTON identified additional wetlands or other waters on the site. The additional wetlands identified by WESTON extend along the southeastern border and throughout the northern half of the site.

Any discrepancy between the NWI and WESTON field investigation can be explained by the USFWS reliance on aerial photography at the mapping scale of 1:80,000 to design NWI maps and lack of ground truthing.

SECTION 2

WETLANDS DEFINITION/DELINEATION METHODOLOGY

Wetlands are defined by the USACE and U.S. Environmental Protection Agency (USEPA) (CE.33CFR 328.3 and EPA. 40CFR 230.3) as:

> *Areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, and similar areas.*

The site was delineated using the U.S. Army Corps of Engineers Wetlands Delineation Manual (Environmental Laboratory, 1987). In accordance with the methodology set forth, the following three parameters are diagnostic of wetlands: 1) the land is dominated by hydrophytic vegetation (plant species characteristic of wetlands); 2) the substrate is undrained hydric (wetland) soil; and 3) the substrate is saturated with groundwater or flooded for a significant part of the growing season each year. Under normal circumstances, all three wetland criteria must be met for an area to by classified as a wetland.

SECTION 3

WETLANDS DELINEATION METHOD

The USACE manual contains several methods for the identification and delineation of wetlands (Environmental Laboratory, 1987). The method used depends upon the site characteristics and accuracy of available information. The methods vary in the level of investigation required. The routine method is typically used on small sites and the comprehensive method is used on larger, more complex sites. Disturbed area and problem area wetland determination procedures are applied in areas where, due to existing site conditions, one or more of the three wetland criteria are obliterated or not present. For example, soil characteristics may not indicate hydric soils due to fill or other disturbance activates. Vegetation may not be a reliable indicator of wetland and non-wetland areas due to site disturbance and maintenance (e.g., mowing and pasture).

For this project site, wetlands and other waters were identified and delineated in the field using the routine method found in the USACE manual (Environmental Laboratory, 1987). This investigation was conducted on May 20, 2002. Wetland boundaries were flagged and surveyed using a Global Positioning System (GPS) in the field. Sample stations representative of wetlands were selected to collect data on the vegetative community, soils and hydrologic conditions (Appendix A). Plant species were identified using appropriate botanical publications for the region. Soils and hydrologic conditions were characterized following methods identified in the USACE manual and guidelines established in Soil Taxonomy.

A delineation map of the site showing the surveyed wetland boundaries is included in Appendix A. Sample station data sheet are found in Appendix D. Photographs of the property are included in Appendix E.

SECTION 4
WETLAND INVESTIGATION RESULTS

Four wetland areas were delineated at the site. Wetland Area 1 consisted of several points around a small pond and an associated wetland complex. Wetland Area 2 consisted of several points along the southeastern border of the property. Wetland Area 3 is a small depression at the southern part of the property adjacent to the former building complex. Wetland Area 4 is a large wetland complex located in the northern portion of the property that encompasses approximately 40 % of the property. Three small areas of upland and fill were surveyed within Wetland Area 4 with GPS and are noted on the wetland delineation map as being non-wetland areas. Notes from the wetland delineation determination are provided in Appendix D.

4.1 VEGETATION

Emergent, scrub/shrub, and forested wetlands are the types found in the study area. Dominant herbaceous species include Feather Reed Grass (*Phragmites australis*), Stiff Sedge (*Carex strita*), and Tall Scouring Rush (*Equisetum hyemale*). Common woody species included pussy willow (*Salix discolor*), red twig dogwood (*Cornus stolonifera*), Green Ash (*Fraxinus pennsylvanica*), Cottonwood (*Populas deltoides*), and Black Willow (*Salix nigra*).

Upland areas adjacent to wetlands consist of a mixture of fields, scrub/shrub and forested areas. The common species in these areas are characteristic of uplands. Tree species included Cottonwood (*Populas deltoides*) and Staghorn Sumac (*Rhus typhina*). Herbaceous species consisted of Seaside goldenrods (*Solidago sempervirens*), Switch Grass (*Panicum virgatum*), and Strawberry (*Fragaria virginiana*).

4.2 SOILS

The soils found at the site were similar to the soils descriptions found in the Soil Survey of Lake County, Indiana (Persinger, 1972) with the exception of the fill areas.

Soil color was generally a reliable indicator of wetland (hydric) and non-wetland areas at the site and adjacent areas. The presence or absence of redoximorphic features aided in determination of wetland areas. In some areas the soils were too wet to characterize, but were considered hydric due to presence of water (ponded or saturation near the soil surface).

All areas that were not classified as wetlands contained significant amounts of fill that was approximately 2 to 4 feet in depth. Fill material consisted of slag, cinders, sand, and gravel. With closer investigation of buried soil horizons they often resembled hydric soils. The soil color and redoximorphic features were representative of hydric soils.

4.3 HYDROLOGIC CONDITIONS

Direct evidence of wetland hydrologic conditions in the form of soil saturation and inundation was recorded at the wetland borings during the site investigation. Other evidence of hydrologic conditions included watermarks on vegetation.

In contrast, non-wetland areas lacked directly observable surface water or soil saturation during field investigation.

4.4 OTHER WATERS

One small isolated pond is located in the eastern portion of the site. The pond is approximately 3,000 square feet and contains wetland vegetation along its margin.

SECTION 5
RECOMMENDATIONS

5.0 RECOMMENDATIONS

The U.S. EPA has identified that upon completion of remedial activities at the Calumet Container site, the site may be used as an educational wetland for the local community. Current wetland conditions of the site can be classified as low to medium quality wetlands. To create an educational wetland, it is recommended that the low quality wetland areas, which are dominated by non-native invasive vegetation (Feather Reed Grass), be removed in conjunction with the remedial activities for the site.

It is also suggested to only remove the fill and debris piles from the wetland areas leaving the native soil intact. The native wetland soils are rich with organic matter and will provide an optimal growing matrix for new vegetation.

5.1 REVEGETATION

The site should be revegetated the native trees, shrubs, and herbaceous wetland species. The following is a suggested list of native wetland species for revegetation:

Herbaceous Species:

Asclepias sp.	Milkweed species
Carex sp.	Sedge species
Eleocharis palustris	Spike rush
Eupatorium perfoliatum	Common Boneset
Glyceria striata	Fowl manna grass
Helenium autumnale	Sneezeweed
Leersia oryzoides	Rice cutgrass

Lobelia siphilitica	Great Blue Lobelia
Panicum sp.	Switchgrass species
Polygonum sp.	Smartweed species
Scirpus sp.	Bulrush species
Sparganium eurycarpum	Giant bur reed

Shrub Species:

Cornus stolonifera	Red-Osier Dogwood
Cephalanthus occidentialis	Buttonbush
Salix discolor	Pussy Willow
Sambucus canadensis	Elderberry

Tree Species:

Celtis occidentalis	Hackberry
Fraxinus pennsylvania	Green Ash
Quercus bicolor	Swamp White Oak
Quercus marcocarpa	Bur Oak
Salix nigra	Black Willow

Herbaceous mix should be planted as seed at a rate of 5# lbs of seed mix per acre. Woody shrubs should be planted at 10 plants per acre and trees species should be planted at 30 plants per acre. All woody species may be planted as 18" to 24" bare root specimens.

5.2 MONITORING

The site should be monitored for a period of two years after installation. Monitoring shall include the following:

- Periodic weeding of invasive non-native plant species.
- Areas void of plants shall be reseeded with the same seed mix as specified.

SECTION 6

BIBLIOGRAPHY

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APPENDIX A

WETLAND DELINEATION MAP

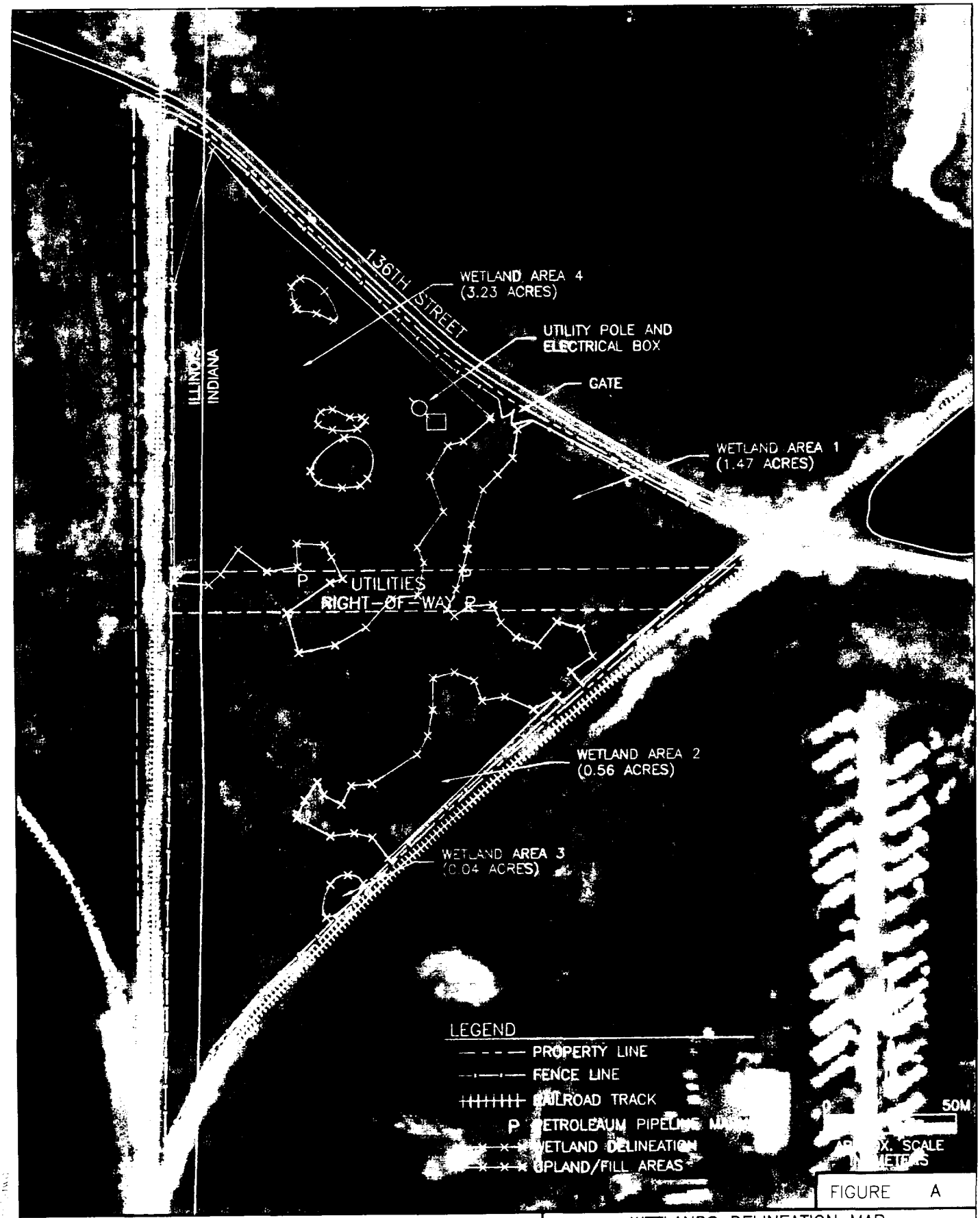


FIGURE A

WESTON MANAGERS DESIGNERS/CONSULTANTS

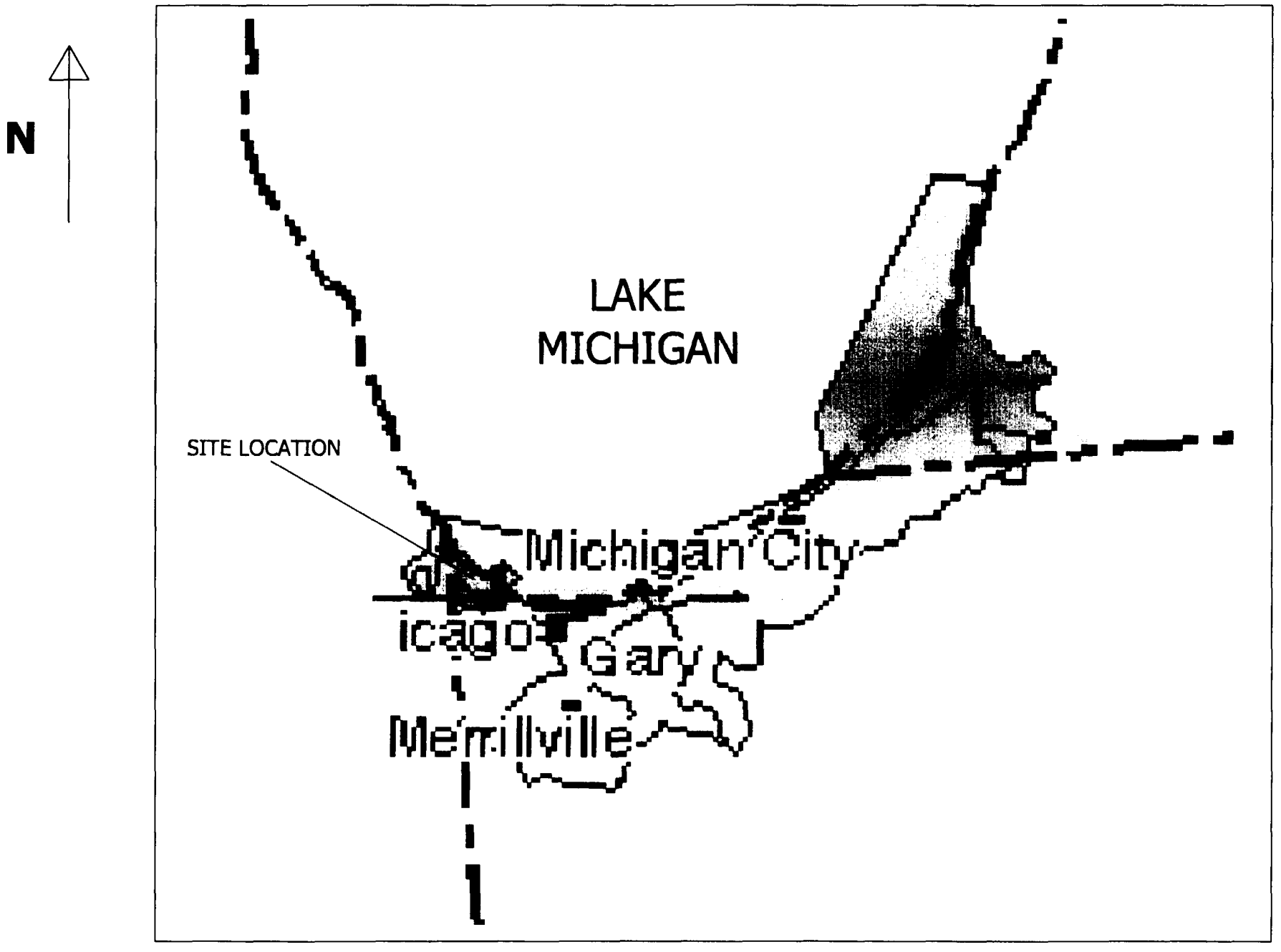
750 E. Bunker Ct.
Suite 500
Vernon Hills, Illinois
60061

WETLANDS DELINEATION MAP
CALUMET CONTAINER SITE
U.S. EPA
Chicago, Illinois

APPENDIX B

WATERSHED MAP

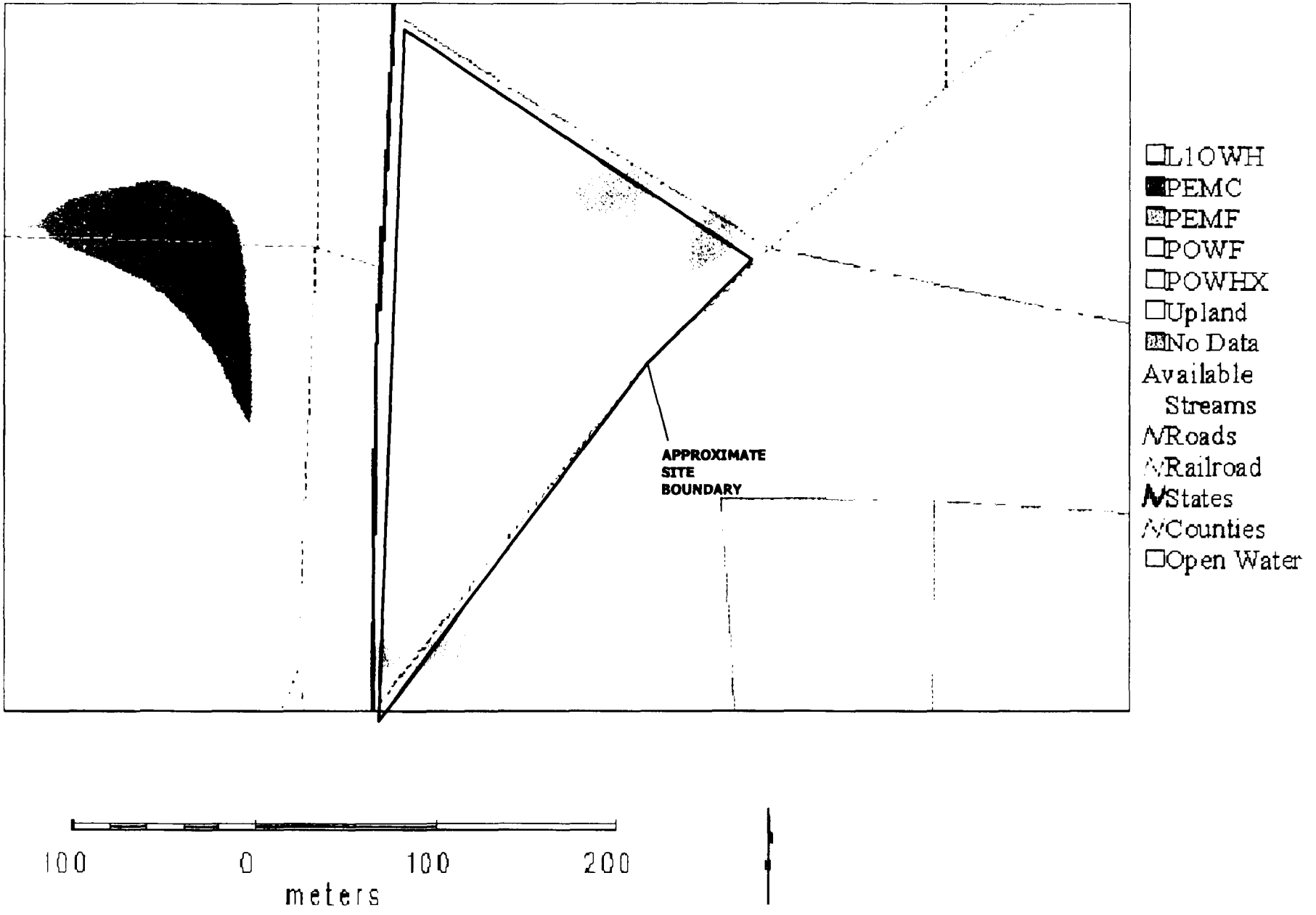
LAKE MICHIGAN WATER SHED MAP



APPENDIX C

U.S. FISH AND WILDLIFE SERVICE WETLAND MAP
GEOTRACT INTERNET MAPPING UTILITY

U.S. Fish and Wildlife Service GEOTRACT Internet Mapping Utility



APPENDIX D

DATA FORMS

ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project/Site: Vermont Cartaway Site Wetland 1 Applicant/Owner: Lake County Investigator: Tom Kemply	Date: 5-20-01 County: Lake State: IN
Do Normal Circumstances exist on the site? Yes (No) Is the site significantly disturbed (Atypical Situation)? (Yes) No Is the area a potential Problem Area? (Yes) No (If needed, explain on reverse.)	Community ID: _____ Transect ID: _____ Plot ID: _____

VEGETATION

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. Populus deltoides	T	FACT 2	9. Carex sprecta	H	OBL 5
2. Salix nigra	T	OBL 4	10. Solidago rigida	H	FACU- 4
3. Cornus stolonifera	S	FACW 6	11.		
4. Ionicera maackii	S	UPL 0	12.		
5. Salix bebbiana	S	FACW+ 8	13.		
6. Phragmites australis	H	FACW+ 1	14.		
7. Equisetum hyemale	H	FACW- 3	15.		
8. Fragaria virginiana	H	FAC- 1	16.		

Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-). 70%

Remarks:

HYDROLOGY

___ Recorded Data (Describe in Remarks):
- ___ Stream, Lake, or Tide Gauge
- ___ Aerial Photographs
- ___ Other

X No Recorded Data Available

Field Observations:

Depth of Surface Water: Unknown (in.)

Depth to Free Water in Pit: _____ (in.)

Depth to Saturated Soil: _____ (in.)

Wetland Hydrology Indicators:

Primary Indicators:
- X Inundated
- ___ Saturated in Upper 12 Inches
- ___ Water Marks
- ___ Drift Lines
- ___ Sediment Deposits
- ___ Drainage Patterns in Wetlands

Secondary Indicators (2 or more required):
- ___ Oxidized Root Channels in Upper 12 Inches
- ___ Water-Stained Leaves
- ___ Local Soil Survey Data
- X FAC-Neutral Test
- ___ Other (Explain in Remarks)

Remarks: Small pond inundated with water with a surrounding riparian/wetland area

SOILS

Map Unit Name
(Series and Phase): _____ Drainage Class: _____

Field Observations
Taxonomy (Subgroup): _____ Confirm Mapped Type? Yes No

Profile Description:

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Structure, etc.

Hydric Soil Indicators:

___ Histosol
___ Histic Epipedon
___ Sulfidic Odor
___ Aquic Moisture Regime
___ Reducing Conditions
___ Gleyed or Low-Chroma Colors
___ Concretions
___ High Organic Content in Surface Layer in Sandy Soils
___ Organic Streaking in Sandy Soils
___ Listed on Local Hydric Soils List
___ Listed on National Hydric Soils List
___ Other (Explain in Remarks)

Remarks:

WETLAND DETERMINATION

Hydrophytic Vegetation Present? Yes No (Circle)
Wetland Hydrology Present? Yes No
Hydric Soils Present? Yes No

Is this Sampling Point Within a Wetland? (Circle) Yes No

Remarks:

Approved by HQUSACE 2/92

DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project/Site: Calumet Containment Site Wetland '2A'	Date: 5-20-01
Applicant/Owner:	County:
Investigator:	State:
Do Normal Circumstances exist on the site? Yes (No)	Community ID:
Is the site significantly disturbed (Atypical Situation)? (Yes) No	Transect ID:
Is the area a potential Problem Area? (Yes) No (If needed, explain on reverse.)	Plot ID:

VEGETATION

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. Populus deltoides	T	FAC+ 2	9.		
2. Salix nigra	T	OBL 4	10.		
3. Fraxinus pennsylvanica	T	FAC 1	11.		
4. Cornus stoloniferа	S	FACW 6	12.		
5. Phragmites Australis	H	FACW+ 1	13.		
6.			14.		
7.			15.		
8.			16.		

Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-). 100%

Remarks:

HYDROLOGY

___ Recorded Data (Describe in Remarks):
- ___ Stream, Lake, or Tide Gauge
- ___ Aerial Photographs
- ___ Other

X No Recorded Data Available

Field Observations:

Depth of Surface Water: ______ (in.)

Depth to Free Water in Pit: ______ (in.)

Depth to Saturated Soil: 4 (in.)

Wetland Hydrology Indicators:

Primary Indicators:
- ___ Inundated
- X Saturated in Upper 12 Inches
- ___ Water Marks
- ___ Drift Lines
- ___ Sediment Deposits
- ___ Drainage Patterns in Wetlands

Secondary Indicators (2 or more required):
- ___ Oxidized Root Channels in Upper 12 Inches
- ___ Water-Stained Leaves
- ___ Local Soil Survey Data
- ✓ FAC-Neutral Test
- ___ Other (Explain in Remarks)

Remarks:

SOILS

Map Unit Name
(Series and Phase): _____ Drainage Class: _____

Taxonomy (Subgroup): _____ Field Observations
Confirm Mapped Type? Yes No

Profile Description:

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Structure, etc.
0-3	A	10yr 3/1	10yr 5/6	MFP	S.Lt Loam
3-8	B	10yr 5/1	10yr 6/6	MAP	S.Lt Loam

Hydric Soil Indicators:

- ___ Histosol
- ___ Histic Epipedon
- ___ Sulfidic Odor
- ___ Aquic Moisture Regime
- ___ Reducing Conditions
- X Gleyed or Low-Chroma Colors
- ___ Concretions
- ___ High Organic Content in Surface Layer in Sandy Soils
- ___ Organic Streaking in Sandy Soils
- ___ Listed on Local Hydric Soils List
- ___ Listed on National Hydric Soils List
- ___ Other (Explain in Remarks)

Remarks:

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	Yes	No	(Circle)
Wetland Hydrology Present?	Yes	No	
Hydric Soils Present?	Yes	No	

(Circle)
Is this Sampling Point Within a Wetland? Yes No

Remarks:

Approved by HQUSACE 2/92

ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project/Site: Calumet Container Site Wetland 28	Date: 5-20-01
Applicant/Owner:	County:
Investigator:	State:
Do Normal Circumstances exist on the site? Yes No	Community ID:
Is the site significantly disturbed (Atypical Situation)? Yes No	Transect ID:
Is the area a potential Problem Area? Yes No	Plot ID:
(If needed, explain on reverse.)	

VEGETATION

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. Populus deltoides	T	FAC+	9.		
2. Phragmites australis	D	FACW+	10.		
3.			11.		
4.			12.		
5.			13.		
6.			14.		
7.			15.		
8.			16.		

Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-). 100%

Remarks:

HYDROLOGY

___ Recorded Data (Describe in Remarks):
- ___ Stream, Lake, or Tide Gauge
- ___ Aerial Photographs
- ___ Other

X No Recorded Data Available

Field Observations:

Depth of Surface Water: _____ (in.)

Depth to Free Water in Pit: 2 (in.)

Depth to Saturated Soil: _____ (in.)

Wetland Hydrology Indicators:

Primary Indicators:
- ___ Inundated
- X Saturated in Upper 12 Inches
- ___ Water Marks
- ___ Drift Lines
- ___ Sediment Deposits
- ___ Drainage Patterns in Wetlands

Secondary Indicators (2 or more required):
- ___ Oxidized Root Channels in Upper 12 Inches
- ___ Water-Stained Leaves
- ___ Local Soil Survey Data
- X FAC-Neutral Test
- ___ Other (Explain in Remarks)

Remarks:

SOILS

Map Unit Name
(Series and Phase): _____ Drainage Class: _____

Taxonomy (Subgroup): _____ Field Observations
Confirm Mapped Type? Yes No

Profile Description:

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Structure, etc.
0-4	A	10yr 5/1			
4-6	AL	10yr 5/2	10yr 5/6	M, F, D	

Hydric Soil Indicators:

- ___ Histosol
- ___ Histic Epipedon
- ___ Sulfidic Odor
- ___ Aquic Moisture Regime
- X Reducing Conditions
- X Gleyed or Low-Chroma Colors
- X Concretions
- ___ High Organic Content in Surface Layer in Sandy Soils
- ___ Organic Streaking in Sandy Soils
- ___ Listed on Local Hydric Soils List
- ___ Listed on National Hydric Soils List
- ___ Other (Explain in Remarks)

Remarks:

WETLAND DETERMINATION

Hydrophytic Vegetation Present? (Yes) No (Circle)
Wetland Hydrology Present? (Yes) No
Hydric Soils Present? (Yes) No

(Circle)
Is this Sampling Point Within a Wetland? (Yes) No

Remarks:

Approved by HQUSACE 2/92

DATA FORM

ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project/Site: Calumet Containers Site wetland '3'	Date: 5-20-01
Applicant/Owner: Lake County, IN	County: Lake
Investigator: Tom Hangsleben	State: IN
Do Normal Circumstances exist on the site? Yes (No)	Community ID:
Is the site significantly disturbed (Atypical Situation)? (Yes) No	Transect ID:
Is the area a potential Problem Area? (Yes) No	Plot ID:
(If needed, explain on reverse.)	

VEGETATION

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. Populus deltoides	T	FAC+	9.		
2. Phragmites australis	H	FACW-	10.		
3.			11.		
4.			12.		
5.			13.		
6.			14.		
7.			15.		
8.			16.		

Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-). 100%

Remarks:

HYDROLOGY

___ Recorded Data (Describe in Remarks):
- ___ Stream, Lake, or Tide Gauge
- ___ Aerial Photographs
- ___ Other

X No Recorded Data Available

Field Observations:

Depth of Surface Water: _____ (in.)

Depth to Free Water in Pit: _____ (in.)

Depth to Saturated Soil: _____ (in.)

Wetland Hydrology Indicators:

Primary Indicators:
- ___ Inundated
- X Saturated in Upper 12 Inches
- ___ Water Marks
- ___ Drift Lines
- ___ Sediment Deposits
- ___ Drainage Patterns in Wetlands

Secondary Indicators (2 or more required):
- ___ Oxidized Root Channels in Upper 12 Inches
- ___ Water-Stained Leaves
- ___ Local Soil Survey Data
- X FAC-Neutral Test
- ___ Other (Explain in Remarks)

Remarks:

SOILS

Map Unit Name
(Series and Phase): _____ Drainage Class: _____

Field Observations

Taxonomy (Subgroup): _____ Confirm Mapped Type? Yes No

Profile Description:

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Structure, etc.
0-8	A	10yr 4/1	10yr 5/6	F, F, D	

Hydric Soil Indicators:

- ___ Histosol
- ___ Histic Epipedon
- ___ Sulfidic Odor
- ___ Aquic Moisture Regime
- ___ Reducing Conditions
- X Gleyed or Low-Chroma Colors
- X Concretions
- ___ High Organic Content in Surface Layer in Sandy Soils
- ___ Organic Streaking in Sandy Soils
- ___ Listed on Local Hydric Soils List
- ___ Listed on National Hydric Soils List
- ___ Other (Explain in Remarks)

Remarks:

WETLAND DETERMINATION

Hydrophytic Vegetation Present? (Yes) No (Circle)
Wetland Hydrology Present? (Yes) No
Hydric Soils Present? (Yes) No

Is this Sampling Point Within a Wetland? (Yes) No (Circle)

Remarks:

Approved by HQUSACE 2/92

ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project/Site: Calumet Container Site "Northside Wetland"	Date: 5-20-01
Applicant/Owner:	County: LAKE
Investigator:	State: IN
Do Normal Circumstances exist on the site? Yes (No)	Community ID:
Is the site significantly disturbed (Atypical Situation)? (Yes) No	Transect ID:
Is the area a potential Problem Area? (Yes) No	Plot ID:
(If needed, explain on reverse.)	

VEGETATION

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. Populus deltoides	T	FAC+ 2	9. Phragmites australis	H	FACW+ 1
2. Salix nigra	T	OBL 4	10. Solidago canadensis	H	FACU 0
3. Fraxinus pennsylvanica	T	FAC 1	11. Solidago rigida	H	FACU- 4
4. Salix discolor	S	FACW 2	12. Scirpus cyperinus	H	OBL 6
5. Salix bebbiana	S	FACW+ 8	13. Asclepias incarnata	H	OBL 4
6. Cornus stolonifera	S	FACW 6	14. Equisetum hyemale	H	FACW 3
7. Rubus idaeus	S	FACU- 5	15. Fragaria virginiana	H	FAC- 1
8. Lonicera maackii	S	UPL 0	16. Carex stricta	H	OBL 5

Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-). 14/16 = 87.5 %

Remarks:

HYDROLOGY

___ Recorded Data (Describe in Remarks):
- ___ Stream, Lake, or Tide Gauge
- ___ Aerial Photographs
- ___ Other

X No Recorded Data Available

Field Observations:

Depth of Surface Water: _____ (in.)

Depth to Free Water in Pit: _____ (in.)

Depth to Saturated Soil: 5 (in.)

Wetland Hydrology Indicators:

Primary Indicators:
- ___ Inundated
- X Saturated in Upper 12 Inches
- ___ Water Marks
- ___ Drift Lines
- ___ Sediment Deposits
- ___ Drainage Patterns in Wetlands

Secondary Indicators (2 or more required):
- X Oxidized Root Channels in Upper 12 Inches
- ___ Water-Stained Leaves
- ___ Local Soil Survey Data
- X FAC-Neutral Test
- ___ Other (Explain in Remarks)

Remarks:

SOILS

Map Unit Name
(Series and Phase): _____ Drainage Class: _____

Field Observations

Taxonomy (Subgroup): _____ Confirm Mapped Type? Yes No

Profile Description:

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Structure, etc.
0-4	A	10yr 3/1			
4-12	B	~~10yr~~ 10yr 4/1	10yr 7/6	FFD	

Hydric Soil Indicators:

- ___ Histosol
- ___ Histic Epipedon
- ___ Sulfidic Odor
- ___ Aquic Moisture Regime
- X Reducing Conditions
- X Gleyed or Low-Chroma Colors
- X Concretions
- ___ High Organic Content in Surface Layer in Sandy Soils
- ___ Organic Streaking in Sandy Soils
- ___ Listed on Local Hydric Soils List
- ___ Listed on National Hydric Soils List
- ___ Other (Explain in Remarks)

Remarks:

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	(Yes) No	(Circle)
Wetland Hydrology Present?	(Yes) No	
Hydric Soils Present?	(Yes) No	

Is this Sampling Point Within a Wetland? (Yes) No (Circle)

Remarks:

Approved by HQUSACE 2/92

APPENDIX E

PHOTOGRAPHS

Photo 1. View of wetland complex 1. Note the dominance of Feather Reed Grass (*Phragmites australis*). Fill can be seen in the lower left side of photo

Photo 2. Open water feature associated with wetland complex 1

Photo 3. View of wetland complex 2. It is Scrub/shrub, forested wetland with Feather Reed Grass as the dominant species. Tree species include Green Ash (*Fraxinus pennsylvanica*) and Cottonwood (*Populas deltoides*)

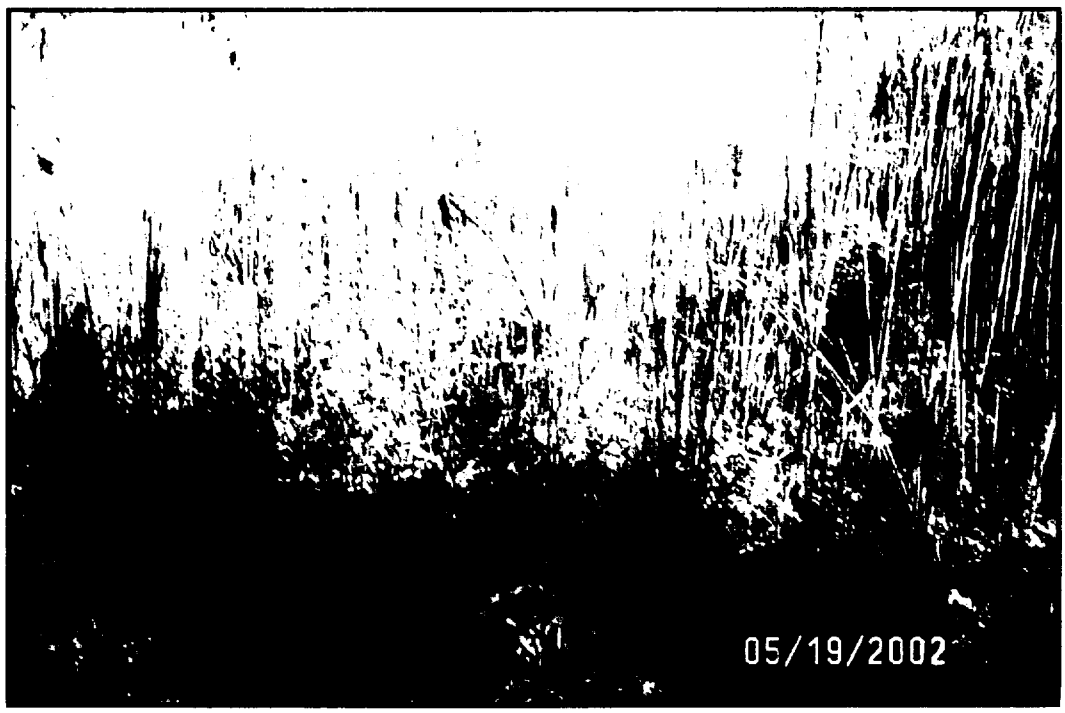


Photo 4. View of wetland complex 3.

Photo 5. View northeast from western border of property of wetland complex 4. Sign signifies the petroleum pipeline ROW.

Photo 6. View of emergent, scrub/shrub, forested wetland within wetland complex 4. Note large debris piles within wetland area.

Photo 7. View of hydric soil boring typical of wetland complex 4.

Photo 8. View of debris pile within wetland complex 4.